DOCUMENT RESUME

ED 447 103 SP 039 581

AUTHOR Fortman, Cheryl K.; Pontius, Richard
TITLE Self-Efficacy during Student Teaching.
PUB DATE 2000-10-00
NOTE 13p.; Paper presented at the Annual Meeting of the Mid-Western Educational Research Association (Chicago, IL, October 25-28, 2000).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Behavior Change; Elementary Secondary Education; Gender Issues; Higher Education; Preservice Teacher Education; *Self Efficacy; Sex Differences; *Student Teacher Attitudes; Student Teachers; *Teacher Effectiveness

ABSTRACT

This study investigated changes in teaching efficacy during student teaching using a modified version of the Teacher Efficacy Scale. The study occurred over three-quarters of one academic year, with the survey instrument administered to all student teachers at one small, private college during student teaching orientation. Students were placed in a variety of student teaching settings, mainly in suburban schools. During the final 2 weeks of student teaching, all preservice teachers completed the instrument again. A total of 100 usable forms were obtained over the three quarters. Data analysis indicated that the group as a whole showed a statistically significant gain in efficacy as a result of student teaching, though there were differences between elementary and secondary preservice teachers. There were no statistically significant changes by gender in scores between pretest and posttest. The results suggest that preservice teachers' efficacy prior to student teaching is a reasonable predictor of efficacy after student teaching ends. The survey is appended. (Contains 10 references.) (SM)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 447 103

SCOPE OF INTEREST NOTICE
The ERIC Facility has assigned this document for processing to:
SP
In our judgment, this document is also of interest to the Clearinghouses noted to the right. Indexing should reflect their special points of view.
TM

SELF-EFFICACY DURING STUDENT TEACHING

Dr. Cheryl K. Fortman
Bluffton College
280 W. College Ave.
Bluffton, Ohio 45817
e-mail: fortmanc@bluffton.edu

Dr. Richard Pontius
Montana State University Northern
Education Department
Havre, Montana 59501
e-mail: rpontius@msu.edu

Presented at MWERA
Chicago, IL
October 25-28, 2000

BEST COPY AVAILABLE

SP039581

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY
C. K. Fortman
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

regardless of external factors and was considered congruous wit Bandura's outcome expectancy construct. This was labeled Teaching Efficacy.

Working with prospective teachers, Woolfolk and Hoy (1990) used a modified version of the Teacher Efficacy Scale developed by Gison and Dembo. Items that produced adequate reliability were retained in the new instrument while some other items were eliminated. Several additional items were included as well. This study reconfirmed the two factor facet of teacher efficacy.

Looking at the Teacher Efficacy Scale, Hoy and Woolfolk (1990) and Woolfolk and Hoy (1990) commented that the factor categorized as an outcome expectation by Gibson and Dembo appeared to be an additional efficacy expectation rather than an outcome expectation. Their rationale came from the idea that the ability of teaching to counteract student background factors was an expectation not an outcome. Gusky and Passaro (1994) noted two factors on the instrument but decided that the factors appeared to conform more to an internal and an external locus-of-control with the construct labeled personal efficacy appearing to be related to an internal locus-of control. They commented that while apparently relationship existed, it was not a straight locus-of-control relationship.

Kushner (1993) further modified the instrument used by Woolfolk and Hoy to make it more in tune with the needs of preservice teachers. In her study, Kushner reconfirmed the two factor nature of the efficacy construct postulated by Bandura.

THE STUDY

This study was an attempt to examine changes in teaching efficacy during student teaching. The instrument used was a modified version of the Teacher Efficacy Scale (Kushner, 1993). Changes were made to increase the usability with preservice teachers at all levels (elementary, middle grades, secondary and special education K-12). The instrument used a Likert-type scale and employed the six answer forced-choice scale used by Kushner (1993).

The study was done over three quarters (one academic year) with the instrument given to all student teachers at a small private mid-western college during student teaching orientation. Student participation in this research was strictly voluntary and answer sheets were coded for confidentiality. Students were placed in a variety of settings with the majority being in suburban schools. During the final two weeks of student teaching all preservice teachers were once again given the instrument. 100 usable forms were obtained between the three groups.

Self-efficacy is defined as the belief in one's ability to perform a particular behavior. Since teaching is performance-based this has implications for preservice and beginning teachers who may have limited experience with students. The belief that one has the ability to teach a particular subject or to teach well in general, can help fuel success in the first stages of a teaching career.

Bandura (1977) proposed a theory of self-efficacy leading to behavioral change. He hypothesized two factors in his model. The first factor consisted of efficacy expectations. These expectations develop from an individual's belief that he or she is capable of performing a given behavior. The second factor is known as outcome expectations or the belief that Performing a specific behavior will result in a desirable outcome. Thus, outcome expectations may be negative in spite of positive efficacy expectations. The individual may believe him/herself capable of performing a given behavior, but in the end may not believe that performing the behavior will lead to the desired outcome. Conversely, an individual may believe that a given behavior will cause a specific outcome, but doubt the personal ability to perform such a behavior. The desired situation is for the individual to believe both he or she can perform the behavior and that such behavior will produce the desired outcome.

Bandura also points out that neither efficacy expectations nor efficacy outcomes are fixed values and may function along a continuous range of values. For example, one's belief in The ability to perform a given behavior is influenced by the perception of difficulty of that behavior. Walking across a level floor will probably be perceived by most as an easy behavior to attain and therefore have a high efficacy expectation. On the other hand, walking across a wire strung between two points will likely be perceived as much more difficult and therefore the efficacy expectation will almost certainly be lower. People's beliefs in their efficacy can have diverse effects. These beliefs influence many things; the courses of action people choose to pursue, how much effort will be put forth on given endeavors, even how long a person will persevere in the facr of obstacles and failure (Bandura, 1997).

Citing research from others on the importance of teacher efficacy, Gibson and Dembo (1984) developed the Teacher Efficacy Scale. Through factor analysis they noted the accuracy of Bandura's 2-factor construct of efficacy for teachers. Items they found grouped in Factor 1 related to the teachers' belief in personal responsibility for student learning. They labeled this item Personal Teaching Efficacy which corresponded with Bandura's self-efficacy dimension. The second factor related to the teachers' belief in personal ability to bring about change.

Data relating to the type of school assigned (rural, urban or suburban) and gender of the student teacher as well as teaching areas were self-reported by the student teachers. Statistical analysis was done using SPSS. As might be expected in education, the group was not evenly divided by gender, having more female than male student teachers.

RESULTS

The alpha reliabilities for the two scales from the modified Teacher Efficacy Scale – Personal Efficacy Scale (PESCALE) and Teaching Efficacy Scale (TESCALE) were 0.74 and 0.56 respectively. These are slightly lower than those reported by Pontius (1998). The low reliability on the TESCALE suggests that caution should be used in the application of TESCALE data.

We used oneway ANOVA to look at the baseline student data prior to student teaching and how the scale scores related to each other and between groups. We found that on the PESCALE there was a significant difference ($p=.05$) between elementary and secondary teachers. This was the only significant difference found in the PESCALE results (Table 1).

TABLE 1

Group	n	Pretest PESCALE mean score	Posttest PESCALE mean score
1	56	4.696	4.862
2	9	4.694	4.796
3	33	4.369	4.568
4	6	4.2778	4.317
Totals	104	4.568	4.737

Group 1 = Elementary Student teachers
Group 2 = Middle Level Student teachers
Group 3 = Secondary Student teachers
Group 4 = Special Education Student teachers

At the conclusion of student teaching there was no significant difference between any of the groups at the .05 level. In each group the scores on the PESCALE had improved.

When all groups were combined and scores compared using a paired t-test, posttest scores were significantly different from the pretest scores. As noted in Table 1, the combined pretest score was 4.568 and the posttest score 4.737. This was highly significant at greater then the .01 level.

Looking at the TESCALE scores using oneway ANOVA, we found no significant differences between any groups at the .05 level (Table 2).

TABLE 2

Group	n	Pretest TESCALE mean score	Posttest TESCALE mean score
1	56	4.103	4.071
2	9	3.75	3.847
3	33	3.962	3.674
4	6	3.896	4.000
Totals	104	4.015	3.922

Group 1 = Elementary Student teachers
Group 2 = Middle Level Student teachers
Group 3 = Secondary Student teachers
Group 4 = Special Education Student teachers

At the end of student teaching, as at the beginning, there was no significant difference at the .05 level between any of the groups. It should be noted that in three of the four groups, including the two largest groups, the scale scores actually declined.

When all groups were combined, the decline in scores (Table 1) while definite, was not significant at the .05 level.

Gender

Prior to student teaching, gender appeared to be a factor in teaching efficacy at least on the PESCALE. Female student teachers scored 4.646 on the PESCALE contrasted with a score of 4.309 for their male counterparts (Table 3). This was statistically significant at the .05 level. The difference, while present on the TESCALE, was not as profound, and in fact not statistically significant. Female students scored 4.061 to their male counterparts 3.865 (Table 3).

What affect would student teaching have on these scores? Looking at PESCALE scores at the completion of student teaching, we found that the difference between the genders was still statistically significant. Male students scored 4.465 compared to female students 4.819 (Table 3).

As before, there was not a statistically significant difference based on gender on the TESCALE with female students scoring 3.950 compared to the male students' score of 3.828 (Table 3).

Table 3

Comparison by Gender

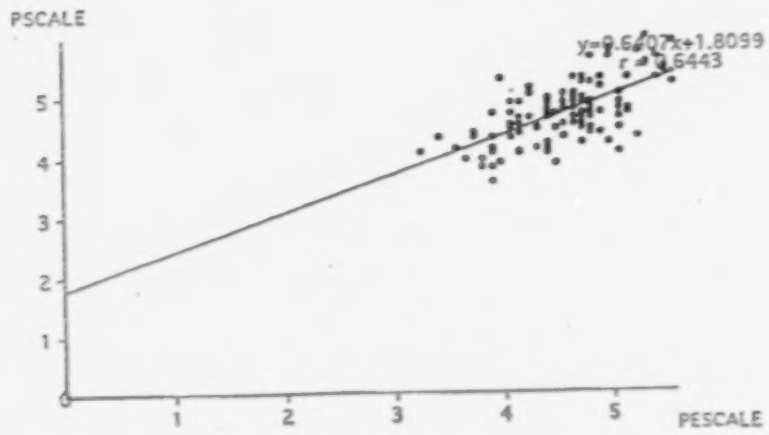
Gender	PrePE	Post PE	Pre TE	Post TE	PE Gain	TE Gain
Female	4.6458	4.8188	4.0609	3.9500	.1729	-.1109
Male	4.3090	4.4653	3.8646	3.8281	.1563	-.0365

The "gain" scores from each group suggest that regardless of gender, student teaching increases the students' belief in their ability to produce appropriate teaching behaviors. As noted earlier, scores on the TESCALE declined for both genders. In neither case was there a significant difference in the decline based on the gender of the student teacher. It may be worth noting that the decline was less for male students than for female students.

Pretest-Posttest Correlation

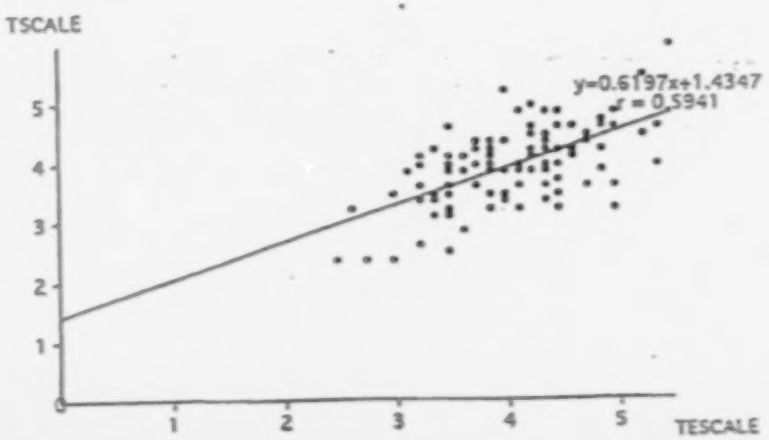
To determine the strength of the relationship between the pretest and the posttest, we checked to see how closely the pretest correlated with posttest for both the PESCALE and TESCALE. The PESCALE pretest correlated quite closely with the post test scale with a correlation coefficient of .644. This may be seen graphically in Figure 1.

Figure 1



Looking at the TESCALE results we found that they also were closely correlated although not as closely as the PESCALE. The correlation coefficient for the TESCALE was .5946. Graphically this is represented by Figure 2.

Figure 2



DISCUSSION

PESCALE

The significantly higher scores of future elementary teachers on the PESCALE compared to future secondary teachers certainly suggests that either there is a difference in the preparatory programs or in the overall characteristics of individuals choosing a career path. Typically, elementary preparatory programs emphasize teaching methodology more than secondary programs. Logically, this emphasis on pedagogy should express itself in a greater sense of teaching efficacy from future elementary teachers. Typically secondary programs stress content matter more than methodology which logically would translate to slightly lower teaching efficacies in general. It would also be likely that if asked if they were comfortable with their level of content knowledge, future secondary teachers would score higher than their elementary counterparts.

It should be noted that results from groups two and four are biased by a small sample size. A larger number of students in the sample might have resulted in significant differences. A replication of this project with a larger sample size could shed light on this question.

Overall, the group as a whole showed a gain in efficacy that was statistically significant. The connotation is that in spite of a major field experience (300 hours) component prior to student teaching, the student teaching element boosts the students' belief in their ability to teach children. Still, could there be ways to structure the student teaching experience to foster an even greater gain in teaching efficacy?

TESCALE

The two largest groups showed declines in TESCALE scores suggesting that these students developed less of whatever it was that the TESCALE measured. This problem of the TESCALE construct was discussed in the introduction to this paper. While not statistically significant, the decline in scores is potentially problematical since one would hope that scores would rise with experience in the classroom. Yet, this did not happen in the two largest groups. A possible explanation for this is that the realities of classroom teaching suggest to the student that he/she is less able to surmount problems posed by the students' daily environment than what was previously believed. This may be one of the realities of teaching or perhaps schools should look at other ways to structure field experiences or student teaching to address this problem.

GAIN SCORES BY GENDER

There was no significant difference in the change of scores between the pretest and post test on either scale. While not statistically significant, male student scores declined less than female scores. This might be related to the lower initial scores and therefore lower efficacy expectations on the TESCALE.

PRETEST POSTTEST CORRELATIONS

We investigated the strength of the correlation between the pretest scores and the posttest scores with the idea that if the correlation were strong the pretest scores could perhaps act as a predictor of efficacy after student teaching ended. Conversely if there was a weak correlation or no correlation, it could suggest that the robustness of the student teaching experience was much more important than pre-student teaching efficacy scores. Since scores on each scale were strongly correlated from the pretest to the posttest the individual student's efficacy prior to student teaching appears to be a reasonable predictor of efficacy after student teaching ends.

FURTHER RESEARCH

Perhaps as Schools of Education rewrite their curricula and States raise their standards for teacher education, educators should consider the importance of self-efficacy or locus-of-control for preservice teachers. We may be neglecting an important aspect of education -- instilling the confidence or belief that each soon-to-be teacher can make a difference in the lives of children no matter what level he or she teaches. As often happens, what we found stimulated more questions than answers. Many questions need to be answered before we can be sure of the effects of student teaching on preservice teachers self-efficacy. As topics we wondered:

- Can confidence in this ability to teach be developed in preservice teachers and can mentors (cooperating teachers) build on this during student teaching?
- How does the cooperting teacher's sense of teaching efficacy affect the efficacy in the student teacher?
- In Ohio, education majors have been required to complete 300 clinical/field hours prior to student teaching, Could this extended experience result in students being over-confident when starting their student teaching?
- Do certain areas having no change in post-test scores mean students are at a high level already and do not need to show more confidence?
- Does the assigned site for student teaching contribute to the loss or gain in this confidence?
- How can we assure preservice teachers that they will not lose that love of teaching and confidence in self during their field experiences?
- Are there major differences in the way private colleges prepare teachers compared to public universities?
- Does efficacy vary from subject to subject independent of general teaching efficacy?
- What is the relationship of specific subject efficacy to general teaching efficacy?
- Is age or gender a factor?
- What experiences contribute to building a broad sense of efficacy in teachers?

Potential future research in this field should include replication of this study to investigate its validity with other preservice populations. As some of these questions are answered, perhaps we can better develop a program that will build confidence as well as teaching ability for all our teachers.

Example of Questionnaire used

Please indicate the degree to which you agree or disagree with each statement below by circling the appropriate numeral on the answer sheet provided:

1. Strongly disagree with the statement
2. Moderately disagree
3. Slightly disagree
4. Slightly agree
5. Moderately agree
6. Strongly agree

1 2 3 4 5 6

Strongly disagree Strongly agree

1. If a student does better than usual, many times it will be because I will have exerted a little extra effort.
2. The time spent in school has little influence on students compared to the influence of the home environment.
3. The amount a student can learn is primarily related to family background.
4. If students aren't disciplined at home, they aren't likely to accept any discipline at school.
5. I will have enough training to deal with almost any learning problem when I am a teacher.
6. If a student has difficulty with an assignment, I will be able to adjust it to his/her level.
7. If a student gets a better grade than he/she usually gets, it will be because I will have found better ways of teaching the student.
8. If I really try, I will be able to get through to most difficult students.
9. A teacher is very limited in what he/she can achieve because a student's home environment is a large influence on his/her achievement.
10. Teachers are not a very powerful influence on student achievement when all factors are considered.
11. If the grades of my students improve, it will usually be because I found more effective teaching approaches.
12. If a student masters a new concept quickly, it might be because I will have known the necessary steps in teaching that concept.
13. If parents would do more for their children, I could do more.
14. If a student does not remember information I gave in a previous lesson, I will know how to increase his/her retention in the next lesson.
15. If a student in my class becomes disruptive and noisy, I will know some techniques to redirect him/her quickly.

References

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York: W.H. Freeman and Company.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review,* 84, 191-215.

Enochs, L. & Riggs, I. (1990). Further development of an elementary science teaching belief instrument: A preservice elementary scale. *School Science and Mathematics,* 90, 694-706.

Gibson, S. & Dembo, M. (1984). Teacher efficacy: A construct validation. *Journal of Educational Psychology,* 76, 569-582.

Gusky, T.R. & Passaro, P.D. (1994). Teacher Efficacy: A study of construct dimensions. *American Educational Research journal,* 31, 627-643.

Hoy, W. & Woolfolk, A. (1990). Socialization of student teachers. *American Educational Research Journal,* 27, 279-300.

Kushner, S. (1993). Teacher efficacy and preservice teachers: A construct validation. Paper presented at the Annual Meeting of the Eastern Educational Research Association (16th, Clearwater Beach, FL, February 17-22, 1993). ED 356 265.

Pontius, R. (1998). Correlation analysis and comparison of two self-efficacy instruments. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching. San Diego, CA, April 19-22, 1998.

Riggs, I. & Enochs, L. (1990). Toward the development of an elementary teacher's science teaching efficacy belief instrument. *Science Education,* 74, 625-637.

Woolfolk, A. & Hoy, W. (1990). Prospective teachers' sense of efficacy and beliefs about control. *Jouranl of educational Psychology,* 82, 81-91.